


In the Specification

Please delete the paragraph beginning at page 4, line 2 and replace it with the following paragraph:


Referring now to Figure 1, a near-object detection (NOD) system 10 is disposed on a vehicle 11 which is here shown in phantom since it is not properly a part of the NOD system 10. The vehicle 11 may be provided for example, as an automotive vehicle such as car, motorcycle, or truck, or a marine vehicle such as a boat or an underwater surface vehicle or as an agricultural vehicle such as a harvester. In this particular embodiment, the near-object detection system 10 includes a forward-looking sensor (FLS) 12 which may be of the type described in U.S. Patent No. 5,929,802, entitled "Automotive Forward Looking Sensor Application," issued July 27, 1999, assigned to the assignee of the present invention, a plurality of side-looking sensor (SLS) systems 16-22 (also referred to as side object detection (SOD) systems 16-22) which may be of the type described in co-pending U.S. Patent Application No. 09/931,636, entitled "Radar Transmitter Circuitry and Techniques," filed August 16, 2001, assigned to the assignee of the present invention and a plurality of rear-looking sensor (RLS) systems 24, 26. The sensors 16-28 may be coupled to the vehicle using a variety of techniques including but not limited to those described in co-pending U.S. Patent Application No. 09/930,868, entitled System and Technique for Mounting a Radar System on a Vehicle, filed August 16, 2001, assigned to the assignee of the present invention. The system 10 can also include a stop and go (SNG) sensor 27. It should be understood that the processing performed by the stop and go sensor 27 and detection zone provided by the sensor 27 can also be provided by the FLS 12 and thus sensor 27 can be omitted. In deciding whether to provide the stop and go processing function from FLS 12 or through a separate sensor (e.g. SNG sensor 27), a trade-off must be made. Exemplary trade off considerations include minimum and maximum desired detection range, zone edge tolerances and reaction time.

Please delete the paragraph beginning at page 8, line 2 and replace it with the following paragraph:



In one embodiment, the coverage zone can be modified by adjusting the range gates of the sensor as described in co-pending U.S. Patent Application 09/930,867, entitled "Technique for Changing a Range Gate and Radar Coverage," filed August 16, 2001 assigned to the assignee of the present invention and incorporated herein by reference. In another embodiment, the coverage zone is changed by using a reconfigurable antenna. In still another embodiment, the reconfigurable antenna is provided by using microelectromechanical (MEMs) devices which are used to change beam shape and thus beam coverage. The MEMS can change the aperture shape and thus the shape of the beam.

Please delete the paragraph beginning at page 8, line 10 and replace it with the following paragraph:



It should be noted that with the particular configuration of sensors shown in Fig. 1, seven coverage zones 32-40 are provided as shown in Figure 2. Each of the coverage zones utilize RF detection systems. The RF detection system utilizes an antenna system which provides multiple beams in each of the coverage zones. In this manner, the particular direction in which another object approaching the vehicle or vice-versa can be found. In one particular embodiment, the FLS sensor 12 (Figure 1) utilizes an antenna system which includes eight separate antenna beams. Therefore, the RF system can operate in a manner similar to that described in the above-referenced Patent No. 5,929,802. Similarly, the sensors 16-27 utilizes an antenna system which includes seven separate antenna beams. Therefore, the RF system can operate in a manner similar to that described in the above-referenced U.S. Patent Application No. 09/931,636, entitled "Radar Transmitter Circuitry and Techniques."

Please delete the paragraph beginning at page 13, line 6 and replace it with the following paragraph:

94
The antenna assembly 67 includes the receive antenna 68 for receiving RF signals and the transmit antenna 69 for transmitting RF signals. In this particular example, the radar system 66 corresponds to a bistatic radar system since it includes separate transmit and receive antennas positioned proximate one another. The antennas 68, 69 provide multiple beams at steering angles that are controlled in parallel as to point a transmit and a receive beam in the same direction. Various circuitry for selecting the angle of the respective antennas 68, 69 is suitable, including a multi-position switch. An appropriate antenna system may be provided for example as the type described in the aforementioned co-pending U.S. Patent Application No. 09/932,574, entitled "Switched Beam Antenna Architecture."

Please delete the paragraph beginning at page 14, line 16 and replace it with the following paragraph:

95
Each of the sensor systems is disposed on the vehicle 120 such that a plurality of coverage zones exist around the vehicle. Thus, the vehicle is enclosed in a cocoon-like web or wrap of sensor zones. With the particular configuration shown in Figure 2, four coverage zones 68a-68d are used. Each of the coverage zones 68a-68d utilizes one or more RF detection systems. The RF detection system utilizes an antenna system which provides multiple beams in each of the coverage zones 68a-68d. In this manner, the particular direction from which another object approaches the vehicle or vice-versa can be found. One particular antenna which can be used is described in U.S. Patent Application No. 09/931,633, entitled "Slot Antenna Element For An Array Antenna," filed August 16, 2001 and assigned to the assignee of the present invention and the aforementioned U.S. Patent Application No. 09/932,574, entitled "Switched Beam Antenna Architecture."

Please delete the paragraph beginning at page 14, line 28 and replace it with the following paragraph:

Ab
It should be appreciated that the SLS, RLS, and the FLS systems may be removably deployed on the vehicle. That is, in some embodiments the SLS, RLS, and FLS sensors may be disposed external to the body of the vehicle (i.e. on an exposed surface of the vehicle body), while in other systems the SLS, RLS, and FLS systems may be embedded into bumpers or other portions of vehicle (e.g. doors, panels, quarter panels, vehicle front ends, and vehicle rear ends). It is also possible to provide a system which is both mounted inside the vehicle (e.g., in the bumper or other location) and which is also removable. The system for mounting can be of one of the types described in U.S. Patent Application No. 09/930,868, entitled "System And Technique For Mounting A Radar System On A Vehicle," filed August 16, 2001 and assigned to the assignee of the present invention and U.S. Patent Application No. 09/931,276, entitled "Portable Object Detection System," filed August 16, 2001 and assigned to the assignee of the present invention and these applications are incorporated by reference herein.